THE AMERICAN ARCHITECT AND BUILDING NEWS.

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THE new Trinity Church in Boston, the most important church thus far built in New England, except perhaps its neighbor, the new Old South, is nearly finished. The interior decoration, which is already in hand, is a noteworthy undertaking, for it is one of the few instances in which there has been a serious attempt among us to decorate a church with mural paintings; and it is the first instance, we believe, where the whole decoration has been put under the direction of an artist of distinction, to be carried out by himself and his fellow-artists, with the object of bringing the whole work — general color, decorative detail, and figures — into a consistent and harmonious whole. The work is planned and directed by Mr. La Farge, who will himself paint some of the figure-subjects, and is assisted by Messrs. Millett, Maynard, and Lathrop, while the decorative work is in charge of Mr. Cottier. At the present writing, these artists are finishing colossal cartoons of figures of the prophets and evangelists, which will be transferred to the wall in outline for their painting. It is expected to be finished in time for the occupation of the church at Christmas; and for this end the work has been divided among several hands. The decoration is advancing downwards from the roof; but as yet the interior is too much crowded with scaffolding to allow any sight of the general effect. A remarkable experiment is tried in making the ground color of the roof decorations a very dark green, almost black, while under the central tower it is proposed to make it absolutely black. It will be interesting to see how far this may have the effect of making the roof look heavy and near, and how far this effect will be overcome by the treatment of the decoration that is put upon it.

AMONG the interesting things that were shown to the architects in Philadelphia, during their Convention, was the patented process of Messrs. Struthers and Sons, for sawing granite. Hitherto it has been found impracticable to cut granite with a saw, since the ordinary sand process would cut only an inch and a half or two inches per day. The inventor of the Messrs. Struthers' process hit upon the idea of using chilled iron finely divided, instead of sand. A jet of steam is directed upon a fine stream of melted iron, and blows it into spray, just as in the common "atomizer" a jet of air pulverizes, so to speak, the stream of liquid upon which it is turned. The iron, divided into fine globules of (say) a fortieth or a fiftieth of an inch in diameter, falls into cold water, and is chilled into excessive hardness. It is used under a saw of soft iron, and with a stream of water, as sand is used in sawing marble. Most persons would have supposed that the scratching of angular grains of sand would be more efficient than the rolling friction of globules of iron; but it would seem that the sand is speedily crushed into dust, while the tough iron, simply wearing down into smaller and smaller globules, crushes its way through the felspathic and other crystals of the granite (which with us is usually sienite, by the way, and not granite). The rolling of the globules is curiously shown by fine channellings, or flutings, which score the under edge of the saw from end to end. By this device granite can be sawn at the rate of three or four inches per hour, and at small expense; the waste of the iron being about three pounds for every square foot of kerf, or two square feet of sawn surface. For small blocks, where a saw can be used that is short enough and therefore stiff enough to bear a heavy pressure without "buckling," it is found possible to cut at the rate of twelve or fourteen inches per hour. The surface obtained by sawing is vastly better prepared for polishing than a hammered surface, not only because it is smoother, but because by hammering the surface of the stone is "stunned," as it is termed; that is, the crystals are so bruised and shattered below the surface that it is necessary, before the polishing can begin, to grind away an eighth of an inch or more, — which is unnecessary with a sawn surface.

THE work on the great church of the *Sacré Cœur* on the hill at Montmartre, in the environs of Paris, has been stopped for a considerable time. The execution of the church was awarded, our readers will remember, to M. Abadie, after a competition in which the leading architects of Paris took part; and two of the competitive designs, as we have before noted, those of MM. Crépinet and Devrez, are now in the Centennial Exhibition. Very lately the work has been resumed, and it is now going on actively. The difficulty of providing a suitable foundation in a hill of loose sand has led to a peculiar treatment. A series of deep holes, or wells, are excavated to a firm bottom, and these are simply filled up with rough stone. Eighty-six of these wells are to be dug on the site of the building; and on the *quasi* piers so provided, arches are to be turned which will carry the foundation-walls.

At the same time the rebuilding of the *Hôtel de Ville* from the design of MM. Ballu and Deperthes is carried forward with vigor. The foundations are all in, and the basement of the exterior façades mostly completed. The elaborate scaffoldings which have been put up for building the walls are said to be marvels of complexity and ingenious arrangement.

WE are glad to see by a letter in the last received number of the *Builder* that one member of the English Bricklayers' Trade-Union — Mr. Morris, Secretary of the London Lodge — has the independence and clearness of head to protest against the attempt of the union to coerce the Messrs. Doulton, which we noticed in our last number. It remains to be seen how much response this protest will find among his fellows, or how entirely their sense of right may be subservient to the policy of their leaders. The fact that it has led to Mr. Morris's resignation of his secretaryship is not encouraging. One point which the original quarrel and the letter bring strongly to mind is the deterioration in skill to which the action of the trades-unions is surely condemning their members. If trades-unions would devote themselves to encouraging superior skill, they might secure a legitimate vantage-ground from which it would be difficult to drive them; but while they labor to make their work as easy as possible, by cutting down all performance to the level of the poorest workman, they are taking the best means to make it easy to supply their places at short notice; and for this disadvantage the only remedy is in picketing and rattening. That this should be allowed to succeed in a tolerably well-ordered community is a mystery; but apparently it does.

The rule of the British Bricklayers' Association, by which the bricklayer is made to do his work with one hand in his pocket, is perhaps as efficacious a means of degrading work as has yet been devised. But, if we had the ear of the lawgivers of the union, we should be inclined to suggest the advantage of a rule requiring that all bricklayers in good standing should have the left hand amputated. This would make it easy to distinguish everywhere at a glance, with very little danger of mistake, between a unionist and a non-unionist. It would cheapen trousers by making the left-hand pocket unnecessary, and so leave more money for beer and tobacco; and it would be the strongest possible guaranty against forgetfulness of the cardinal rule. It would not interfere with any thing the bricklayer might want to do, for one hand is enough to fill a pipe or lift a beer-mug. The loss of convenience in dressing and undressing would be a small matter, for, since this has to be done at home, the bricklayer's wife could be made to do it for him; and, for disciplining a wife, one hand is probably almost as good as two, besides which the cherished privilege of kicking and stamping on her would be left unimpaired. Moreover, the sacrifice, or perhaps we should say the riddance, of the left hand, would have the serious advantage of unfitting its owner for military service, while the resource of turning a hand-organ would remain.

An interesting example of French thoughtfulness and prevision is the arranging beforehand of a corps of medical attendants with the necessary medical and surgical appliances for the assistance of the workmen who shall incur bodily injury, illness, or death, in the work on the buildings for the *Exposition* of 1878. The corps consists of a physician-in-chief, two associate physicians, and two nurses. The decree issued by the Minister of Agriculture and Commerce, who is at the head of the commission for the *Exposition*, orders that workmen who are made ill or injured in the course of the work shall be cared for at the expense of the Government, either in hospitals or at their own homes, as the physicians shall decide; and that to those who have wives or families to support, and to all who are not provided for in the hospitals, half-pay shall be allowed so long as the injury or illness so contracted keeps them from their work. Those who by reason of such injuries or illnesses are made unfit for further work, will be allowed half-pay for a year; and when one is killed on the work, or dies in consequence of injury received there, an indemnity of six hundred francs will be paid to his wife, or the family that may be dependent on him. An exception is made of those who may be injured while intoxicated, who are entitled only to medical assistance. The arrangement is most thoughtful and humane; yet we can fancy a workman who goes to his employment without consideration of danger hearing with something of a shock of such careful preparation for his succor. The physician-in-chief is also charged with arranging all possible precautions to protect the health of the workmen during the work.

The latest tunnel project of which we hear is one to unite Europe and Africa by a tunnel under the Straits of Gibraltar, from Algeciras on the Bay of Gibraltar to a point near Ceuta on the Morocco coast. The length of the tunnel is computed at about twenty-two miles, of which the nearly level central part is nine miles, and the two ramps at either end six or seven miles each. The necessary depth below the surface is said to be about thirty-three hundred feet, and people have been found to estimate the cost at twenty millions of dollars. Who are to furnish the twenty millions, does not yet appear; but the idea is an English one, we believe, and British capital is doubtless expected to come forward. It may somewhat surprise the French rulers of Algeria to hear that the projected tunnel is proposed as part of an all-rail route from England to India. What with the inland sea which other English projectors have proposed to let into the north-western part of the Sahara from the Atlantic, and the Mediterranean basin which the French talk about making at El Jerid, and an English through express train emerging from under Gibraltar to dash across the Barbary States to Egypt and India, Northern Africa would hardly know itself.

By an error which, by an unfortunate accident, we did not discover in time to correct, in our 42d number, the note which we appended to our correspondent's letter from Philadelphia was referred to the wrong paragraph in the text, robbing Mr. Furness of the credit of one of his notable works, — the church at the corner of Broad and Arch Streets. It is the hotel-entrance in Chestnut Street that is Mr. Supplee's work.

THE INSTITUTE.

The chief attention of the late Convention of the American Institute of Architects was given to the questions of fees and of membership. It was felt on all hands, that for the work the Institute was to do, as well as for its own prosperity, it was important that it should engage the co-operation of as large a part of the profession as possible; and co-operation means membership. Whether the reduction of fees will prove the widely prevailing inducement that many members expected, we are somewhat disposed to doubt; although, apart from the fact that economy is desirable for its own sake, so far as it does not interfere with efficiency, it is worth while to try the experiment. Setting aside the straitened feeling that is peculiar to years of business depression like this and the last, architects would probably be willing to pay the moderate sum which has been required of the members of the Institute whenever they took a real interest in the objects for which it was demanded, and saw that their advantage and that of the profession was promoted in them. It is the policy of the Institute, therefore, not merely to make the financial burdens of membership as light as they may reasonably be, but to show that its work and influence are useful, and to give evidence of such interest among the members as shall excite interest in others. It is not enough for the members to be apathetically persuaded that its fellowship is a good thing, to be enjoyed in contented inactivity; it is not enough to make it easy to come into it: it must be shown to be desirable also. For a membership that is purely ornamental, men may be willing to pay a little, but it will be only a little. As soon as they see that it forwards objects that they have at heart, a larger payment is a readier contribution.

Some members have been disposed to ask (rather inconsiderately, it seems to us) what they get in return for their annual fees; and outsiders may more naturally ask the same question. A diploma of fellowship, and an annual pamphlet of more or less interesting proceedings, are no great return, certainly; but a professional association is neither a speculation nor a gift-enterprise. The real question is not, What visible return can the individual contributor show for his money? but, Are the objects for which it is spent worth the while, and is it spent upon them with proper economy? And proper economy is not screwing down the expenses to the lowest point, but taking care that nothing is spent except for a reasonable want. The work of the Institute is the improvement of the standing, influence, and efficiency of the architectural profession in the United States. Its benefits cannot be parcelled out and estimated for individuals; but they are real and weighty, as will be evident to anybody who will take the pains to examine the record of the past twenty years; and they are shared by the whole profession: hundreds who have never lifted hand to help the work owe some part of their every-day success to what the Institute has done. The independent position of architects, so far as it is independent;

their recognized property in their own designs and drawings; their repute in the community; their acceptance as experts in the courts; their security in demanding the customary fees, — all these owe their establishment in a good degree to the Institute, which has fought many a hard battle, and gone through much laborious work, in their behalf. The building-laws of our large cities, imperfect as they still are, have been made as good as they are through its efforts. The determination of innumerable questions of practice has been helped by it; and it has done a good deal to keep up and display a high standard of attainment among the profession. In other words, so far as association and common endeavor have done any thing for architects in the country, it is due to the Institute; and, for whatever may be accomplished by these means in the future, the Institute is to be looked to; for there is no other such organization, and none other is needed. That there is work enough to be done which requires common and organized endeavor, ought to need no argument; and that fellows in work are mutually improved by association and the widest interchange of ideas, is as evident. The good effects of professional association are patent to us in the two professions which are at present the most respected and the most progressive among us, — the medical and the engineering. The remarkable progress in enlightenment and influence of these two professions, of late years, is very greatly due to their associated activity: and it may safely be said, that the cities in the United States where architects are most successful and most respected are just those in which their association has been most active.

There are those in every profession who are content to share the benefits of others' work, and contribute nothing to it; who will reserve their own efforts for what personal success they may control, untrammelled by the obligations of societies, while they draw their profit from the standing of a profession which their irregularities tend to undermine. There are others who would deliberately prefer a life of outlawry, in which their hand should be against every man; but their ways, if they should prevail, would speedily reduce the profession to the condition in which it was a generation ago, when, as a profession, it had no respect at all in the community, and would make the general practice an unseemly scramble for patronage, — a chaos of underbidding and bad work. There is enough hard work to be done in architecture without wasting strength in pulling down one's fellows, or undermining the platform that supports the whole, for the sake of raising a solitary pier for one's own support. However capable a man may be of standing alone, there is nobody to whom the good repute of his profession will not be an efficient help. This repute depends much more on the average attainment and received standard of the profession than on the exceptional qualifications of individuals; and there is nothing that raises the general level of attainment like association. The mass of any profession will gain more by the support it will give them than they will lose by any small surrender of independence that it may exact. Professional independence, in fact, is impossible. There is no such thing. Every architect learns from his fellows, and is sustained by them, as every physician does, or every engineer; and an honorable man will be glad to give as much as he gets. The question is, whether one shall take what he can without acknowledgment and without return, or shall make his contribution for the general good; whether he shall thrive by blackmail, or by exchange.

Those who take the selfish view of the question will look only for personal return; but it is well, even then, to take in the broad aspect of it; and, in the broad aspect, whatever is best for the profession is best for the individual. Whatever abridges the necessity for self-defence leaves so much more energy for advance. Where the establishment of a recognized system relieves a man from the necessity of fighting for his fees or his authority, or for advantages over his fellows, he is so much freer to put his strength into his work. When the community has learned to understand and respect his profession as a profession, he has exactly the same kind of advantage that accrues in society to a man whose social position is assured. But, happily, the majority of architects have other than a personal interest in their profession. They are fond of their work for its own sake, and wish to see the general standard as high as possible. They are desirous to educate their communities to the understanding of good work, and to lift their profession to a high level. These men the Institute wishes to attract to itself: they, if they will realize it, will find the Institute an invaluable means to their ends.

The policy of the Institute is as far as possible from being exclusive. Its only condition of membership is "the honorable practice of the profession." Its standard of honorable practice is the same that is maintained everywhere, by architects who respect themselves and their vocation, both in this country and in Europe. To the younger architects, especially, the Institute should look for support. The future of the profession is in their hands. Their opportunities of attainment are better than those of their predecessors; they have the freshness of interest that belongs to the beginning of a career. It is of the first importance that it should attract them to itself by giving them an example and encouragement to attainment and culture, and by laying before them work which they can attempt with interest; and they should look upon it as having privileges of value to confer, and a helpful support to give, — still more as a valuable instrument for the accomplishment of the many objects they will have at heart for the good of their profession.

THE SANITARY CONDITION OF COUNTRY HOUSES.[1]—I.

THE sanitary defects of the average country-house are due to ignorance. Had the architect who built it been stimulated to learn what is required for a perfectly healthful condition, he would of course have been, in every case, vigilant to secure it. Did the physician know, except in a vague and theoretical sort of way, — that is, did he fully realize, — the degree to which the ailments he contends against, and which he should be vigilant to prevent, are diseases due to removable causes connected with the construction and arrangement of the dwelling, he would insist upon a reform. Did the householder himself know the extent to which his own efficiency and the health and lives of his family depend on an observance of the less obvious sanitary requirements, he would demand that both architect and physician should inform themselves as to the needs of his house, and should secure the fulfilling of those needs.

By far the greatest number of country-houses are farmhouses, laborers' dwellings, etc.; and these are not less subject to sanitary criticism than are those of the better class, though their defects are mainly of a different character, and relate more to the grounds about the house and to its water-supply and to the condition of its cellar than to the arrangement of its interior drainage. Indeed, in nearly every case these houses have no interior drainage at all; and such reformation of their character and condition as is needed will be sufficiently indicated in considering houses of the better class. Unhappily, so far as the occupants of these farmhouses and cottages are concerned, there is little hope that much improvement will soon be undertaken, nor indeed that any thing we may say here will be heeded. Until we can convince the country physician that his most important obligation to his community lies in a supervision of the conditions under which it lives, it is hardly worth while to waste breath upon the average members of that community. We may accumulate evidence as to the fatal effect of prevalent carelessness and filthiness in the cellar, and in the soil about the house, until we are tired of making quotations; and, for every instance that we bring forward of a death from typhoid fever traceable to the use of poisoned well-water, the farmer will produce a hundred cases of persons who have used water from wells standing in barnyards or close to privy-vaults or cesspools, without suffering. The action of poisoned water is less direct than that of a well-aimed rifle; and its effect, where

[1] A paper read before the American Public Health Association at its meeting in Boston, 1876, by George E. Waring, jun.

there is any effect, is slower and less obviously connected with the cause than in a case of poisoning by arsenic. We can hardly hope to convince the common man of his error, and induce him to spend money, and to put himself to considerable personal inconvenience, to reform a state of affairs which have existed all his lifetime, and which he believes to have answered well with him and with his fathers. To his mind, typhoid fever, diphtheria, and the whole list of zymotic diseases, are afflictions sent by an inscrutable Providence for some hidden purpose of discipline; and he believes it his duty to bear meekly, if sorrowfully, the chastening to which he is subjected. He is still very far from accepting the idea that his discipline may have for its direct purpose his regeneration in this very matter of hygiene. We know very well that the unvarying operation of the laws of health (which are not entirely inscrutable) strikes in its course both the just and the unjust, and that these laws are disciplinary or not according as we meet their requirements with intelligent obedience, or bow blindly and ignorantly before them. Typhoid fever does not come to us as a punishment for sabbath-breaking nor for profane swearing, but as a punishment for the one sin which brings us within reach of its scourge, — the sin of unwholesome living. Then, too, sinners though we are in this regard, it touches us so slightly, — only here and there a case, — that we are led, not precisely to run the risk of chances which we appreciate, but to remain placidly unconscious that the law is in operation about our own houses, awaiting only the due assembling of the conditions which bring its action to bear upon our own persons.

The great mission of enlightenment, which has been so well entered upon by this association, began its effective operations with the educated classes of society. Especially has it engaged the attention of the two professions to which I have referred. Within the range of these professions the questions of healthful building and healthful living especially lie. From above, the enlightenment will be extended downward, until in some millennial future the merest cottager will understand the degree to which his health depends on the cleanliness or filthiness of his domicile.

In like manner it is obvious that our efforts to secure an improvement in the construction and care of country-houses must be first addressed to the more intelligent classes, and work their way by example among the poorer and the less informed. Let us consider therefore, by way of illustration, the case of an elaborate country-seat, built with a determination to secure every luxury and every comfort, every convenience and every safeguard, that the most skilfully applied modern art can compass; a house to which that compound adjective so dear to the American heart may be applied in every department from garret to cellar, — a house where every thing is "first-class."

If we examine the old mansions of our grandfathers, or go back still farther to the seats of the nobility of past centuries in England, and compare our modern houses with these, we shall realize what enormous strides have been taken in the improvement of many elements of our building. Among other things, the modern mind has at last fully accepted the fact that a wet cellar is dangerous, and is to be, in all cases and under all circumstances, avoided or abandoned. We are still indulgent, and perhaps not very improperly so, of an occasional inroad of storm-water, which subsides within a few hours; but a cellar with standing water is, at least very generally, felt to be an impossible accompaniment of healthful living. By hook or by crook, we manage to get a drain away from the lowest point of every cellar dug in soil that *retains* water after heavy rains. We understand very well — in the case of the better houses perfectly well — the importance of dry walls, at least of dry interior walls. When we build in brick or stone, our opposition to absorbed moisture seems to stop at the point where it is no longer injurious to wall-paper and paint; but we do secure almost universally, by the intervening air-space, a separation of the wall next to which we live, from the wall through which exterior moisture penetrates. We have learned how to warm our houses more uniformly; and we realize, in far greater degree than our fathers did, the importance of abundant sunlight. But here, I fear, so far as health is concerned, the improvement of our building ceases; or, as we pursue our investigations, we come to a point where it seriously retrogrades. In the matter of ventilation, our better-built houses are usually defective. In our hot-air furnaces we burn anthracite coal, separated from the air-chamber only by cast iron, which is, especially when heated, extremely porous to carbonic oxide. We thus introduce an element of unhealthfulness throughout the whole house, which constitutes, as compared with the influence of the open fires of our ancestors, a very serious defect. These influences affecting the wholesomeness of the air we breathe are serious; but they are far less so than is our miserable system of house-drainage.

Half a century ago, in houses of the better sort, the most active prejudice existed against the use of any form of indoor conveniences; and in spite of the often dangerous exposure to the weather, and of the universal stifling foulness of the out-house, no one thought, except in case of serious illness, of permitting defæcation within doors. Partial invalids and delicate persons must perforce subject themselves to an injurious exposure. The objections to this old system were extremely grave, not only on the score of comfort, but greatly also on the score of health. The introduction of the water-closet marked a real advance in our apparent civilization; and the general system of an interior water-supply and drainage, with the agreeable accessories of fixed wash-bowls, baths, laundry trays, butler's sinks, etc., — of what the house agents call "all the modern conveniences," — have made life easier and more luxurious. In certain ways, too, they have added important sanitary benefits.

But in freeing ourselves from the prejudices of our fathers, and in gaining these marked benefits, we have exposed ourselves to dangers which are all the more grave because of their hidden and almost universally unsuspected character. It is by no means necessary that the introduction of modern plumbing-appliances into a house should be any thing but advantageous; but unfortunately, so little is popularly known of the sanitary requirements which should govern the work, while the influence of defective works upon the health of the household is of such a hidden character, that, in securing comfort and convenience, we have in almost every instance introduced a real element of danger.

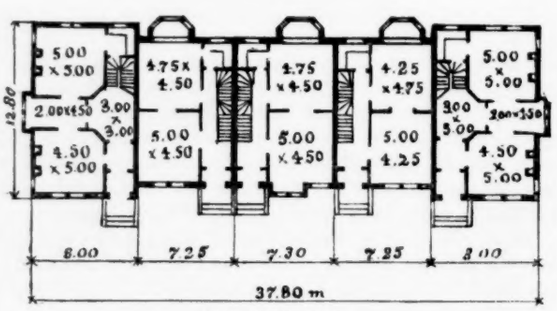
We leave to the plumber, who, except in the rarest cases, is only a skilful mechanic, the entire control of the most important part of our house-building. It has recently been suggested that there is an opening for a new industry among professional men, — a new profession, where instructed sanitarians may find profitable and useful employment in taking the control of this very important branch of house-building and inspection; a profession which should apply itself to the important art of preventing diseases. It seems to me that a much more practical method for attaining the desired end would be to induce the architect who builds the house at the outset, and the physician who has the preservation of our health in charge, to qualify themselves to perform the functions indicated, and to add to their present work the most essential branches of sanitary engineering and sanitary inspection.

In a certain sense, the sanitary question reaches into a field where all is uncertainty and speculation; but enough is already known concerning the relation between neglected or improperly controlled filth and the health of those who live subject to its influence, and enough is also known of the simple means by which all danger may be avoided, to make the prevention of all diseases arising from this source practically certain.

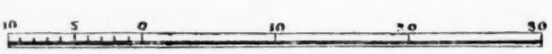
Indeed, the effort to be put forth relates far less to the instruction of the architect and the doctor in the very simple details of sanitary improvement, than it does to impressing them with the importance of applying these details as one of the very first of their professional duties.

THE ILLUSTRATIONS.

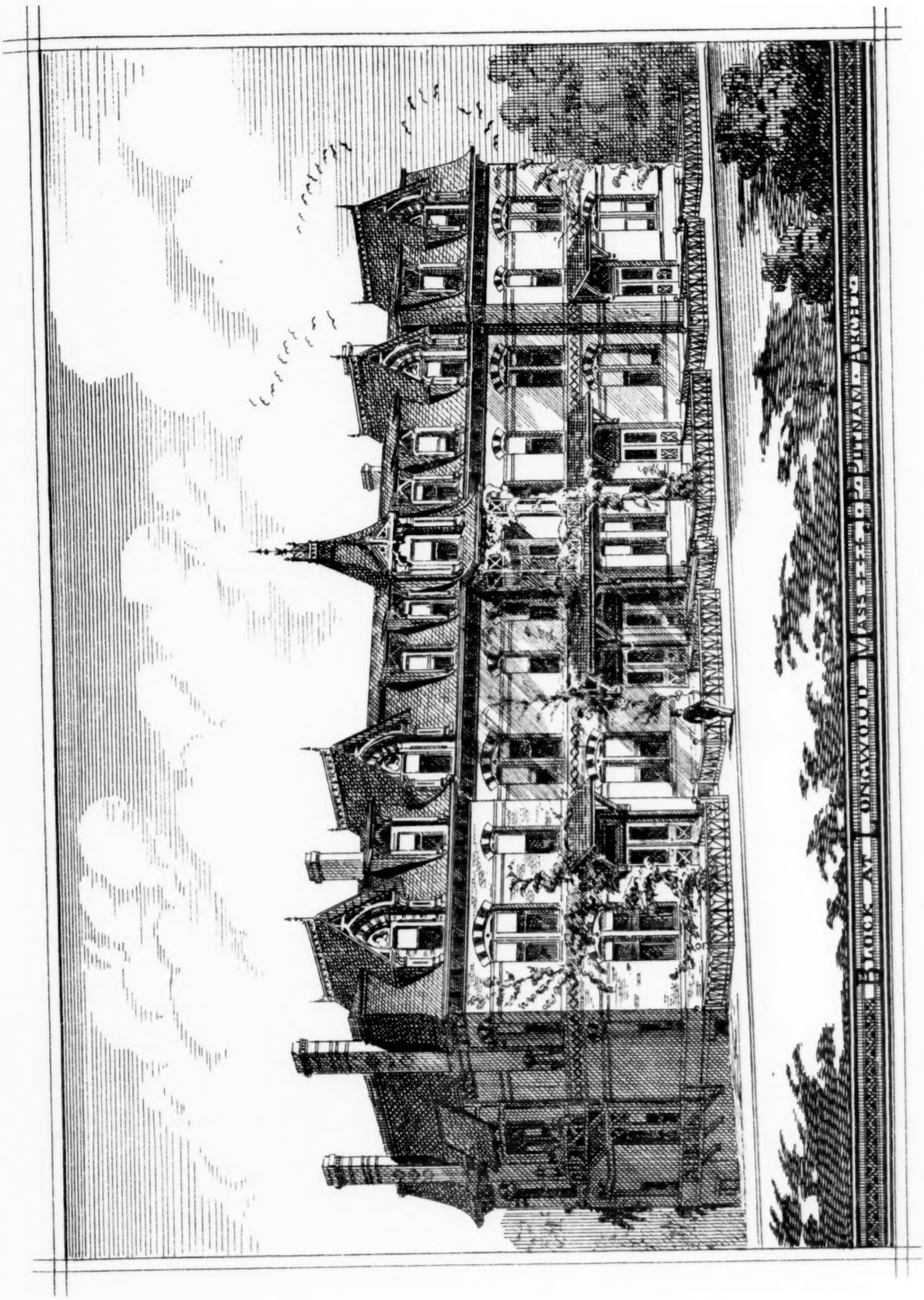
BLOCK OF FIVE HOUSES AT LONGWOOD. MR. PICKERING PUTNAM, ARCHITECT, MASSACHUSETTS.



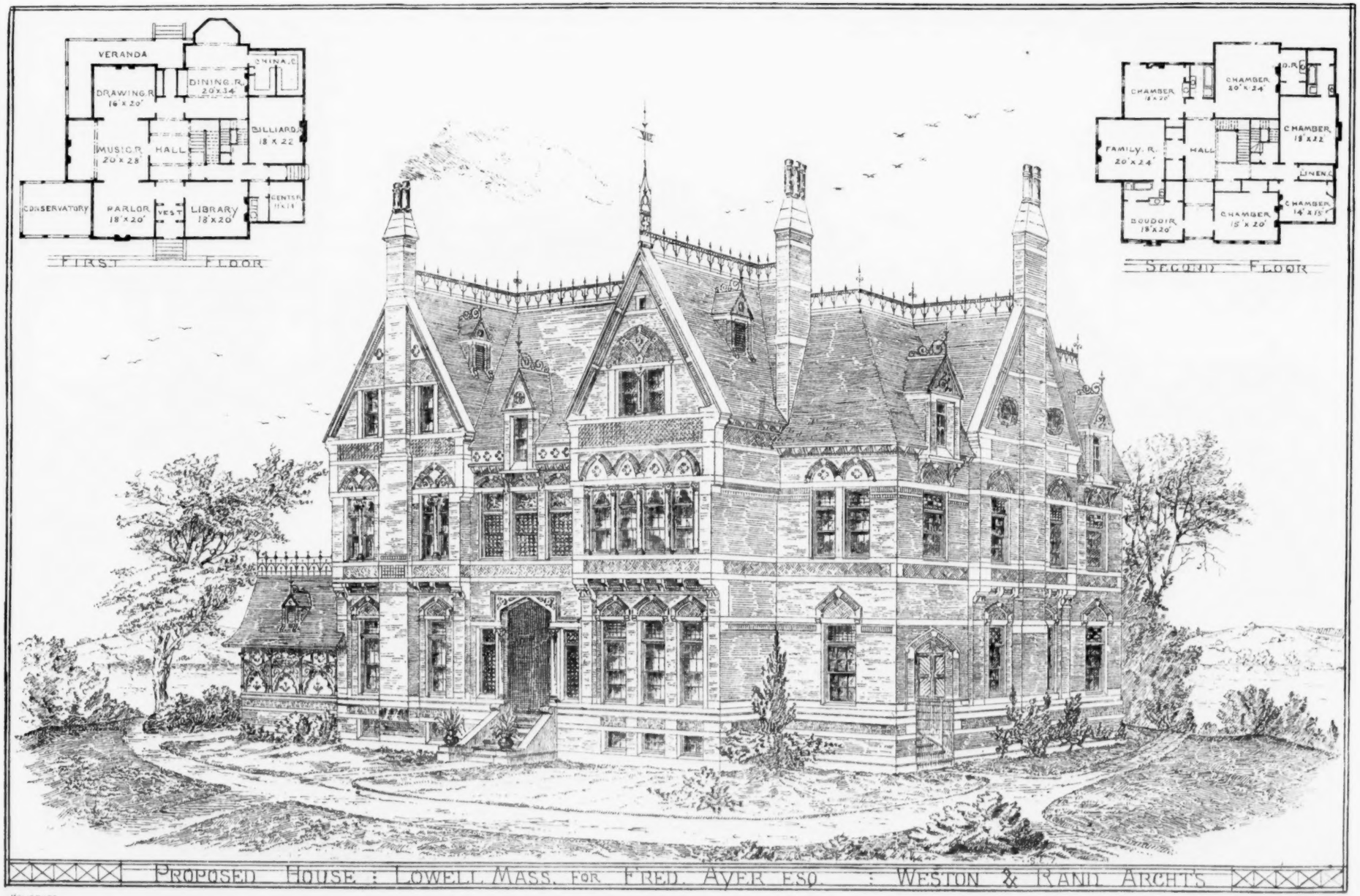
FIRST FLOOR PLAN.



SCALE OF METRES.


PUTNAM
GREENWOOD
BROOK

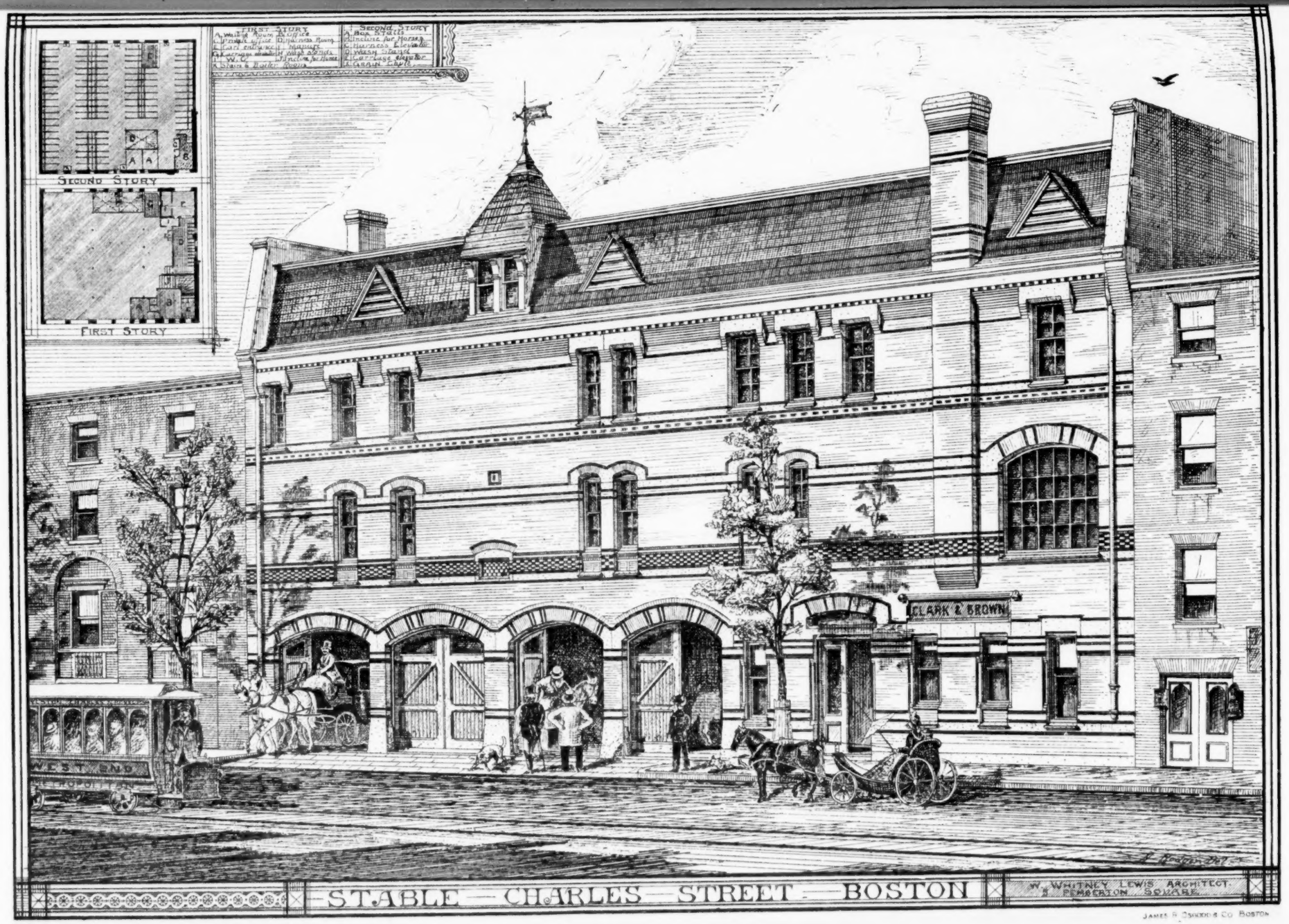
American Architect and Building News. Oct 28 1876.



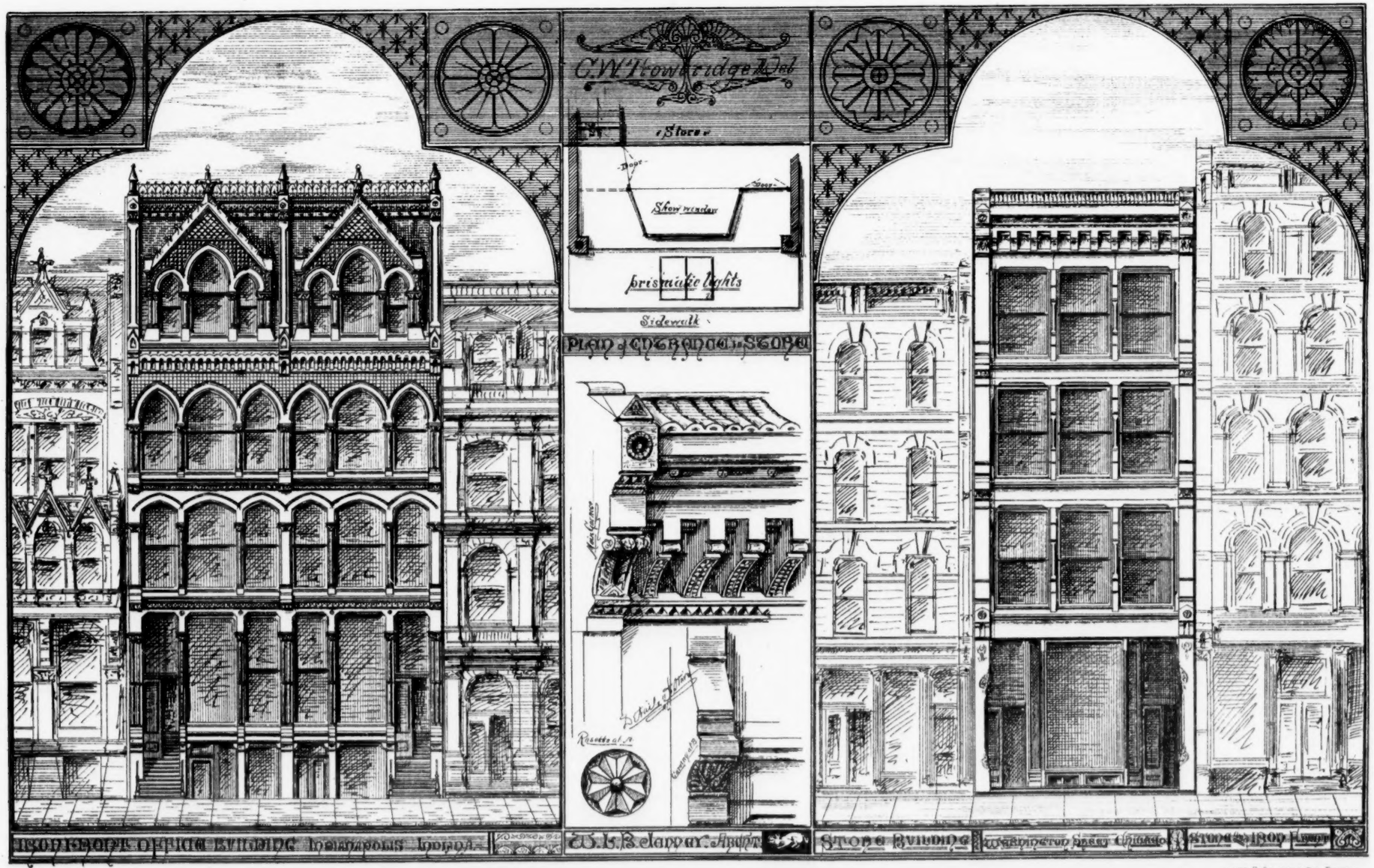
PROPOSED HOUSE : LOWELL, MASS. FOR FRED. AYER ESQ. : WESTON & RAND, ARCHT'S.

HELIOTYPE

JAMES R. OSGOOD & CO. BOSTON



American Architect and Building News, Oct 28, 1876.



HELIOTYPE
JAMES R. OSGOOD & CO. BOSTON

STABLE ON CHARLES STREET, BOSTON, MASS. MR. W. WHITNEY LEWIS, ARCHITECT.

This new building stands on the site of an old and dilapidated stable. In order to avoid too much interference with the business of the proprietors, it was necessary to tear down and rebuild in the short space of eleven weeks; and this was successfully accomplished, the contractors being actually a week in advance of the time specified. The building measures eighty by ninety feet, and will accommodate ninety horses. An attempt was made to secure light and ventilation directly over the heads of the stalls; and the result is very satisfactory, the wells provided for the purpose diffusing a pleasant light over the entire stable, effectually preventing any dark corners.

DESIGN FOR A HOUSE IN LOWELL, MASS. MESSRS. WESTON AND RAND, ARCHITECTS.

IRON-FRONT OFFICE BUILDING, INDIANAPOLIS, IND.; AND STORE BUILDING, CHICAGO, ILL. PROF. W. L. B. JENNEY, ARCHITECT.

The office building was erected on Market Street, Indianapolis, for Jos. A. Moore & Bro. The ironwork, ornamented in polychrome, was executed by Snead & Co., Louisville, Ky., in a most satisfactory manner. Colored designs were furnished for illuminating the front.

The store building has just been finished in Chicago, for the Holmes estate of Boston. All the supports and lintels are of iron. The building is one hundred and eight feet deep, with most of the light in front, the rear alley being narrow. For this reason the glass surfaces were made as large as practicable.

MANTLES AND FIREPLACES IN THE CENTENNIAL EXHIBITION.

To those visitors to Philadelphia who have had the satisfaction of inspecting the interior appointments and fittings of St. George's House (the official headquarters of the British Commission), an instructive lesson must have been conveyed as to the proper uses of the mantle and the hearth-place, such as the exhibits in the English section of the Main Building seem to render necessary. The hearth-place, albeit cherished in this country more or less, until our people discovered how anthracite coal could be burned, has come to be regarded as a British peculiarity; and, while we are getting farther away from it, the cultured Englishman clings yet closer to it with all its domestic and artistic associations, and reverts back to the models for the decorative treatment of its adjunct, the mantle, which the best taste of past centuries could develop. Conceding that the polished black grate of the lower class of houses in the mother country is altogether a mistake, and one which we also share, — for iron, an absorbent of heat and light, enjoys a virtual monopoly in the United States, — there are yet means of modifying the eyesore it creates, if there be a limited measure of æsthetic appreciation in members of the family. Where a fire-grate, or the semblance of one, is present, there may be imported into the adornment of a room in summer-time the charms of growing flowers and shrubs. Few effects are more enchanting in an otherwise well-ordered room, than the arrangement of pots of flowers in the grate will produce. And in England this resource is always available, since flowers are inexpensive; and there scarce breathes an adult who knows absolutely nothing of the modes of cultivating them, even amidst the smoke given out in London by nearly a million fires. In this respect England possesses decided advantages over our own country. Both employ iron, which retains rather than radiates heat. But we employ it in forms that cannot be made contributary to household adornment. Not so do our brothers and cousins beyond the Atlantic, who with duller skies make their homes more cheerful.

The designs of William Morris have generally the fault that, while they are assumed to be in advance of the inartistic, they yet involve the use of iron upon tiles. The lighter tone of the tiling throws up the heat, which the iron of the grate in part absorbs; and the direct contrast of iron to more cheerful colors is certainly an offence against the canons of decoration. At Philadelphia a number of examples may be seen, in some of which this same defect is present, while from some others it is wholly absent. The purest taste that one observes there develops a decided bent toward the abandonment of iron and coal, for porcelain or terra-cotta and fire-clay. In some instances the materials used vary, and not inappropriately, from this indication. Thus the most prominent thing in the stall of Cox & Sons, of London, is a chimney-piece, consisting of mantle and hearth-place, designed to fill up nearly the whole end of a room, the fireplace being of stone and marble. The firm of Cox & Sons have successfully revived the early English style, as Collinson & Lock have, taking another period, brought back the era when glass could not be manufactured for window-panes without the occurrence of knobs in the centre. The fireplace is inlaid with hand-painted tiles, representing birds, foliage, and quaintly treated subjects; as, "The Song," and "The Tale," "The Jest," and "The Book," — similar to those placed upon other decorative work in the Alexandra Palace, on Wiswell Hill. Mirrors and panels are set in carved oak framing, the panels bearing paintings of subjects: "Maternal Affection," "Conjugal Affection," and "Filial Affection." If the fire-dogs be reversed, they form cups for holding flowers in summer, while the reversible arrangement forms an appropriate finish to the dogs when these are in ordinary use in the winter months. Now, in these details it will be sufficiently evident to an intelligent reader, that materials, forms, colors, and treatment are made to contribute to the beautiful in art; and accordingly the effect is rich and harmonious. The portion of the room which the entire work fills up extends, moreover, from floor to ceiling; and hence it follows that, instead of the chimney-piece being merely a piece of filling-in, it of necessity governs the furnishing and decoration of the remaining floor and wall space. And here may be intimated a fundamental rule which obtains in all circles where art is something higher and more elevating than a chance expedient. The harmony of styles, colors, materials, and forms, should be perfectly carried through the arrangements of a house, or of a room, in their entirety. Violent contrasts and grotesque differences should be avoided with peculiar care. A vast deal of envious rant is now heard about malachite table-tops and Mexican marbles; because, forsooth, both happen to be exhibited; they are novel, and they are virtually beyond the grasp of the multitude. The most exalted motive underlying this mania is the extremely vulgar one of outshining everybody else, and attracting attention by a reckless splash into the whirlpool of extravagance. Æsthetic tastes have no part nor lot in the matter. If they had, people would first cogitate upon the measure of affinity the new thing would bear toward the older objects of luxury they already possess, rather than upon the satisfaction of owning a rare and costly article that frequently cannot be used for any purpose beneath the sun. On such a mantle as that of Cox & Sons, or one by Collinson & Lock, or anywhere about the room, statuary of Parian or marble would be a blundering anachronism; but fine bronzes or hammered iron, elaborately decorated brasses, and vessels of gold, pearl, horn, and ivory, not to dwell upon faïence in association with the later styles of the Tudors and Elizabeth, would effectively and chastely enrich (as to some extent is seen in St. George's House) the appearance of carved oak in drawing and reception rooms, and ebony in the dining-room. The same amount of expenditure that would purchase a mere collection of curious things, in which specific features must all be lost in the conglomeration of styles, would suffice to furnish handsomely such palaces of art as may be seen next Thackeray's old house (now Peter Graham's) on Palace Green, or in the Hall (owned by the late Lucas Shadwell) at Fairlight.

The porcelain mantle is characteristic of Sweden, where it is colored, but not inlaid with tiles. On another hand, England shows a most tastefully designed mantle in white glazed porcelain, with relieved figures and panels, and, in the exhibit of Henry Doulton & Co., has remarkable examples of what may be done with various kinds of clay. Thus, the basis of one being terra cotta, birds and flowers moulded in bold relief break up the monotony of straight lines and right angles; a tile hearth is beneath, and a fire-clay grate occupies the recess; while, carried up above, are floriated panels, and heads in *relievi*. The large mirror, seventy by fifty inches in area, is surmounted by harvest scenes, painted upon tiles, surrounded by *relievi* bird and animal figures; and above all, where the mantle-piece joins the cornice-line of the ceiling, three happy children's faces look down, with a rare similitude of life, upon the family group that may be supposed to gather round the hearth. The measurement of this unique construction is eight feet breadth, by thirteen and a half feet total height. The tone of the terra-cotta being light, Parian or marble or terra-cotta statuary would be in place in a room which should contain the mantle. Still more happy would be the execution of a dado in terra-cotta, with figures modelled in relief; though the choice of subjects ought to be made rather in the secular English sphere than in the Oriental province, which the Scripture histories (already dealt with by Tinworth) explicitly cover. Here, at all events, are undeveloped possibilities for some genius in art to turn

to splendid account; and it is sincerely to be hoped that, in the future, America will seek to avail herself of the opportunities of this kind which are fairly placed within her reach by the Centennial Exposition.

AMERICAN INSTITUTE OF ARCHITECTS.

THE CINCINNATI CHAPTER.

THE annual meeting of the Cincinnati Chapter, American Institute of Architects, was held Oct. 17, in their rooms in Pike's Opera House. The minutes being read and approved, the Chapter, on motion, proceeded to the election of officers for the ensuing year, the following being the result: A. C. Nash, President; James W. McLaughlin, Vice-President; Charles Crapsey, Secretary; and Henry Bevis, Treasurer.

A motion by Mr. Anderson was carried, that the Executive Committee report at the next meeting measures to create more interest in and increase the efficiency of the Chapter. The meeting then adjourned. During an informal talk among the members present, the feasibility of creating a public architectural exhibition was favorably discussed, and may yet become a thing of fact.

THE MAIN EXHIBITION BUILDING TO REMAIN.

AT a special meeting of the Commissioners of Fairmount Park, held on the 23d inst., concerning the Main Building, at which all of the members save one were present, it was —

Resolved, That if the Committee of Citizens that appeared before this Commission shall organize a corporation satisfactory to this Commission, shall purchase, own, and possess the Main Building, fronting on Elm Avenue, on or before the first day of January next, and shall desire to use it for the purpose of a public exhibition, this Commission is willing to give such company a license so to do, together with forty feet of ground around the entire building. No building of any kind shall be located on the aforesaid forty feet without the consent of the Park Commission, and upon terms and conditions to be hereinafter agreed upon, in addition to the following, which are now specifically declared: —

1st, That the said building shall be removed and the grounds restored at the expense of the corporation within two years after notice from the Park Commission.

2d, That the building and grounds shall be kept in good order, and shall be surrounded by an iron or other suitable railing, satisfactory to the Park Commission, if required by them.

3d, That the park police shall at all times have access to the building and grounds for police purposes; and the Park Commission, or any member thereof, at all times.

4th, That this license is only given for the purposes of an exhibition for the pleasure and instruction of the public, and not for the sale of goods, except such as are necessary for carrying out such design.

5th, That all laws, ordinances, and resolutions relating to Fairmount Park shall be strictly observed.

6th, That this license shall not be understood to dispense with any special permission now required by law, ordinance, or rule.

7th, That the maximum charge for admission shall be twenty-five cents for five days in the week, and each Saturday ten cents shall be the maximum charge; and if the revenues derived shall be in excess of the amount required to pay needful expenses, additions, and maintenance, with six per cent interest on the actual capital invested by the company, then the admission fee shall be reduced, so that the public may enjoy the exhibition at the lowest possible charge.

8th, That no claim, demand, or liability, either present or prospective, shall exist or be made against the city of Philadelphia or the Park Commission.

9th, That the violation of any of the conditions of this license shall authorize the Commission to revoke the same, and to require the removal of the building forthwith.

CORRESPONDENCE.

SOME ARTISTS' HOUSES.

LONDON.

AMONGST the various clients London architects have had to deal with lately, not the least interesting have been their brother artists, the painters. Since Mr. Shaw built the charming house and studio for Mr. Goodall, R.A., at Harrow, some four or five years ago, house-building has been a sort of epidemic among artists. Whether this is due to the exceptionally high prices obtained for their pictures, or not, we cannot tell; but such is the case, and, judging from what we hear of proposed works, seems likely to continue. Two special localities seem to have been chosen for the new homes of art; viz., fashionable Kensington in the south-west, and picturesque Hampstead and its neighborhood in the north-west. If we cannot say in all cases the result has been the building of houses for artists by artists, still, on the whole, we think both architects and painters are to be congratulated on the attainment of a high standard of merit from a utilitarian as well as an artistic point of view. Even the form and lighting of so many studios is an interesting study; and we may fairly assume, without detriment to either, that both architect and client have in this case to a certain extent worked together more closely than is their wont. Without trying to describe all, we may take several in each of the localities above named, and notice their characteristics as we go on. Taking the fashionable Kensington first, we find just off the main road on the south a large new house just built for Mr. Millais, R.A., from designs by Mr. Hardwick. When we say this is a highly academic production, we mean more than that it savors of the Royal Academy. Besides being the sort of work likely to please the members of that august body, it goes in for being very correct in style, and this style the English version of Italian according to Palladio. It is built of red brick, of good color, with white stone dressings, cornice, etc. Though its general design is not very novel or very striking, it is of the average Italian class, in which, if there is little to praise, there is little to blame, — good ordinary architecture which would possibly not attract much attention, but that it is the house of such an eminent artist as Mr. Millais. Externally there is nothing particular to notice, except that the detail is usually very correct and "academic." Again, the entrance portico of the usual type is very good of its kind: it leads into a fair-sized hall, and spacious, well-designed staircase — the latter one of the features of the house internally. The studio is a noble-sized room, approached by this staircase, while another smaller stair is devoted to models, service, etc.: it is amply lighted, almost too much, so one would think, only on this point its talented owner must be allowed to be the best judge. Taken as a whole, the house is much more commonplace and much less artistic than might be looked for in the home of so great an artist.

Passing farther down the main road of Kensington, we find nestling under the wing, so to speak, of Holland House, quite a cluster of painters' houses, built or building. A new road has been formed among some fine old trees, and it seems only too appropriate to find our artists building here. The fine old house and park of the Holland family (one of the very few fine old mansions left to us in London) could not have more appreciative neighbors than such men as Leighton, or Watts, or Princep; and here we find them.

Mr. Leighton's house, built some years ago by Mr. Aitchison, was an addition to a former building. Its most remarkable feature is its studio, which is a very fine one, wonderfully "furnished," to use a very ordinary word for a very extraordinary room, which must be seen to be understood, as any description would fail to convey an idea of it. As architecture, curiously enough, there is not much to be said for it: in its detail especially it is very nondescript, utterly unlike what might be expected from the classic taste of its owner. Next to Mr. Leighton is Mr. Val. Princep's, a somewhat plain red brick house, with white window-sashes. On the new road just formed is the house of Mr. Watts, R.A., by Mr. Fred. Cockerall, in a style for which it would be hard to find a name, unless it be his notion of some phase or other of old English: it is red brick again, with the window-sashes painted white, but in general design is poor and unmeaning, which old English work never was. The studio is lighted in the most extraordinary manner, with a roof-light masked by a gable, in addition to other windows more or less useful. That Mr. Watts can paint, there is no gainsaying; but that his architect has helped him, in the way of providing good light, is surely open to doubt. On the same side of the road is the house just finishing, by Mr. Norman Shaw, for Mr. Marcus Stone. Here we have an artist's house at last, with its purport stamped on its face. Queen Anne in style, like most of Mr. Shaw's town houses, it has all that quaintness and picturesqueness he knows so well how to impart. Though exceedingly simple in general design, all its points tell, from the cut-brick doorway to the studio dormers in the roof. It is built of dark-brown brick, with red brick dressings, and roofed with brown tiles. The street front is marked by three slightly projecting bay-windows lighting the studio on the upper floor, with dormer-windows in the three gables above them, — a repetition of

features which gives great quietness to the design. The garden front, one of great simplicity, is, at the same time, one of Mr. Shaw's happiest efforts. On the ground floor it has a large wooden bay window lighting the drawing-room. A range of simple windows, windows with their white sashes for the floor above, the line of which is broken by the staircase window, the whole crowned by a very fine cornice in cut-brick work, enriched with the egg-and-tongue in its lower members, all thoroughly homely and thoroughly English, suggesting the garden on which it looks, — nothing could be simpler, yet it is artistic in every line. Internally we have a handsome drawing-room, with an old-fashioned chimney-corner, and lighted by the wide bay-window just mentioned. The studio is a magnificent apartment on the upper floor, over-lighted again, we should think, unless a judicious arrangement of curtains is resorted to; indeed, the windows of one end have apparently been built up, as they only show from the outside; the other end opens into what appears to be intended for a conservatory. In the ceiling the studio goes up into the roof, high lights being provided by the dormers in the street front. This room seems to be almost too large to paint in, unless Mr. Stone means to give us very large pictures indeed. On the other side of the way Mr. Shaw is building another house, for Mr. Fildes, but it is not yet far enough advanced to judge of its effect: it is on a charming site, which seems to have been taken full advantage of. Opposite this, again, we have a house just begun for Mr. Colin Hunter, from designs by Mr. Stevenson; it is to be Queen Anne also, in style of the London School Board type, with which Mr. Stevenson's name has been somewhat identified. But we must reserve notice of these last two houses till they are finished.

Turn we now from south to north, to Hampstead and its neighborhood. If ever a locality near a large city was made for artists, it is surely this, with its picturesque ups and downs, its splendid views and breezy heaths; and here accordingly we find many brethren of the brush. Of their new homes, that built for Mr. Holliday by Mr. Basil Champney is one of the most characteristic. It is Queen Anne again, built of red brick with brown tile roofs, large overhanging plaster cove, white painted window-sashes, tall brick chimneys, etc., combining the well-known elements of the style in a manner at once simple and artistic, in every way suited to its picturesque site. It is homely and English in feeling, both inside and out, and looks like what it is, — the house of an artist. The studio is large and lofty, lighted at the side and end, and separated into compartments by means of screens; a questionable arrangement unless for a special purpose. The staircase and sitting-rooms are very nicely designed; but the entrance seems bad and insignificant for such a house. In a new street called Steele's Road, nearer town, we have quite a cluster of painters, whose houses fill almost one side of the way. Notable among them are Mr. I. D. Linton's (the well-known water-color painter) and Mr. C. E. Johnstone's, by Messrs. Batterbury and Huxley; the former Queen Anne of the Dutch type, and the latter ditto of the School Board type. They are built of yellow stock bricks, with red brick dressings. The most important feature of Mr. Linton's is the broken line of the roof, which gives a most unpleasant effect to the elevation: resting as it does on a projecting plaster cove, it seems as if it would slip down and crush the walls below it. Mr. Linton's studio, however, is a very fine one: the lighting is admirably managed, capable of giving all sorts of effects. Internally the house is remarkable for the quantity of old fittings used in it. The staircase, the chimney-pieces, the doorways, are all from old buildings of the last century, worked in with very good effect. The interior of Mr. Johnstone's is very poor, little attention having apparently been given to it: the studio also is commonplace.

On the same side of the road as the last are two houses from the designs of Mr. J. M. Brydon, one of which belongs to Mr. Jones Barker, the painter of "The Allied Generals in the Crimea," "The Relief of Lucknow," and other well-known historical pictures. Both houses are of stock brick, with red brick dressings, cut cornices, etc., and in the Queen Anne style, homely and English in feeling: they include the usual features, — white window-sashes, plaster coves, brown tile roofs, and tall chimney-shafts. Considerable attention has been paid to the internal fittings, such as the stairs, chimney-pieces, etc., which are carefully designed and in harmony with the picturesque exteriors. Mr. Barker's studio is lighted in a novel manner, from one angle of the room, presumably to get a direct north light, and seems to be successful.

There are also two or three other artists' houses here in a *quasi*-Gothic sort of style, and built of red brick, but with nothing about them calling for any particular remark beyond the fact that they are out of the run of ordinary suburban dwellings. Thus, looking over the works we have been noticing, we find the artists have made their mark in the matter of house-building, and on the whole they have done it well. There is no mistaking the purpose of their dwellings; and it is noteworthy how they are all more or less influenced by the so-called "Queen Anne" revival, but which, after all, is nothing more than good honest English building in brick and tile, ornamented with the materials under their architects' hands: this is as it should be, and is certainly a great advance on imitation palaces and villas in stucco. We seem to be getting into an honest style of building, at any rate, whatever may be said of it as architecture, — one in every way suited to our wants and to the materials at hand to supply them. The good examples above noticed are also being followed up by others. Besides the two houses we mentioned as having just been begun at Kensington, we hear that Mr. Shaw is engaged in designing a house and studio for Mr. Boughton at Campden Hill, and that Mr. Brydon is similarly employed on one for Mr. Archer, R.S.A., for the same place. When painters and architects are thus linked together, we have a right to expect something better than the ordinary average of good designing; and we can safely say that, in the main, we have not been disappointed so far. Let us hope this may be taken as an earnest of still better work to follow.

AN ARCHITECT'S RESPONSIBILITY.

Cambridgeport.

Editor American Architect and Building News.

Dear Sir, — Can you inform a subscriber what is the law, if any, or what have been the decisions of courts, if any, defining the line of responsibility between architects and builders, or superintendents and builders?

For example: Should a design fail through a poor theory of construction adopted by the builder, no special theory of construction being clearly indicated by the designs made by the architect, who is first responsible to the proprietor for imperfection of materials or workmanship, and disaster occasioned thereby, the superintendent or contractor? Or is the superintendent ultimately responsible in case the contractor proves impecunious? In other words, does the superintendent guarantee the requirements of the contract in all matters within the province of his inspection? and, if so, how far does that province extend? Subscriber.

[Note. — The points on which our correspondent touches are important ones; and we shall be glad if any of our readers will enlighten us and him upon them. So far as we can give an opinion at the moment, we should say decidedly that the contractor was responsible first and at once for such imperfections and disasters as are mentioned; and that, when the contractor cannot be made to pay, the superintending architect could not be held liable, until he is proved before a court to have been guilty of gross negligence, — in which case the owner might recover such damages as a jury should award. According to our custom, an architect is held responsible for any mistakes in his own plans or directions, to the full amount of his commission; and probably, in case of gross error, damages might be recovered beyond that limit; but we know of no case where he has been made to pay for faults committed in violation of his requirements. In Europe, and especially in France, the architect is held to a much closer responsibility; but in our country, we imagine, few considerate architects would undertake to superintend their work if they were to be held strictly responsible for all the faults and evasions of their builders, unless their commission for superintendence were considerably increased. Unfortunately it is extremely difficult to say what have been the decisions of courts concerning the practice of architects; for most of the cases have been decided without going either to a jury or a full bench, and without a written opinion from the judges: so that the rulings are not to be found recorded in the reports. — Ed. Am. Architect.]

Fall of a Roof. — On the 28th ult., the roof of the winding-room of a mill near Accrington, Eng., gave way, and in its fall passed through the floor, injuring four persons seriously. The cause of the accident is thought to be the giving way of the outer wall of the winding-room.

NOTES AND CLIPPINGS.

THE OLD SOUTH. — The papers relating to the sale of the Old South Meeting House have at last changed hands, and the property has passed into the hands of Mr. R. M. Pulsifer as trustee. The price demanded, $400,000, was raised by the New England Mutual Life Insurance Company taking a first mortgage of $225,000; $100,000 has been contributed by persons who do not desire to make their names public: — this sum will be used for the purchase of the equity of redemption; and a second mortgage of $75,000, which makes up the $400,000, is held by Mr. Henry P. Kidder as trustee, to secure the money already advanced. The public subscriptions have reached as yet only about $66,000. Probably it will be a very serious work to pay off the mortgages, as the first mortgage has only three years to run, while $6,750 must be paid semi-annually as interest upon it; or, if the interest becomes five months overdue, the property reverts to Mr. Pulsifer, subject to the mortgages. All that can be said of the conditions attached to the sale by the Standing Committee is that they are what might have been expected. The most important of them are that at no time within thirty years from the date of sale shall the building be used for business or religious purposes, and that in case of a breach of any of the conditions, the Old South Society shall have the right to tear down the building at ninety days' notice.

BALANCING THE COSTS. — As it seems that Machinery Hall cost $65,310.73 less than the $700,000 appropriated for its construction by the city, while the Horticultural Hall cost $63,573.39 in excess of the appropriation, which was for $300,000, a request was lately made that enough of the unexpended balance of the former be transferred to pay the deficiency in the latter, a transfer which would still leave a surplus of $1,736.34. There can be little doubt but that the request has already been complied with.

A LARGE STABLE. — A large building now in progress in New York is a handsome brick stable for horses and horse-cars, occupying the entire block bounded by First and Second Avenues, Ninety-sixth and Ninety-seventh Streets. It belongs to the Second Avenue Railway Company, and will cost $125,000.

THE WITHERSPOON STATUE. — On Oct. 2, the statue of John Witherspoon, D.D., LL.D., was unveiled on the Centennial Grounds, Philadelphia. The statue, designed by Mr. J. A. Bailey, is of bronze, twelve feet six inches high, resting upon a pedestal twelve feet high. The cost was about $18,000. One of the four inscriptions upon the pedestal is as follows: "John Witherspoon, D.D., LL.D., a lineal descendant of John Knox, born in Scotland, Feb. 9, 1772; ordained minister in the Presbyterian Church, 1745; President of the College of New Jersey, 1768–1794; the only clergyman in the Continental Congress; a signer of the Declaration of Independence. Died at Princeton, N.J., Nov. 15, 1794."

THE ENGLISH COMMISSIONERS' HOUSE. — The English Commissioners have signified their intention of presenting their house, known as St. George's House, to the city of Philadelphia.

BUILDING IN NEW YORK. — The following list of buildings and the sums to be expended on them gives the most important of the buildings at present actually in progress in New York: —

Union Dime Savings Bank*	$285,000
New York Hospital	400,000
Jefferson Market Court House	350,000
Court House enlargement	430,000
Second Avenue Railroad Depot	125,000
Trinity Church extension	35,000
Fifth Avenue Theatre	35,000
F. W. Stevens's mansion*	300,000
American News Company's building	200,000
Cedar-street Offices	45,000
Arnold & Constable's store	400,000
William H. Webb's apartment house	200,000
Park & Tilford's improvement	75,000
Dr. Sabine's new church	100,000
St. Augustine's Chapel	450,000
Benjamin Field's stores	
Stores in Worth Street	
Total	$3,130,000

* Exclusive of ground.

BRADFORD. — A new town-hall was dedicated at Bradford, N.H., on the 18th inst.

A NEW MONASTERY IN ENGLAND. — It is said that the largest monastery in England is now being erected near Horsham, Sussex, for the Carthusian monks. The style of the building is severe Norman.

ST. PAUL'S. — Londoners are apt to boast that the site of St. Paul's Cathedral, were it vacant for building-purposes, would be worth a sovereign for every square inch of ground. To show how extremely valuable land is in the city, and within a half-mile radius of the Bank, we may mention that a short time ago, the freehold property known as the King's Head Inn, together with extensive buildings attached, the whole covering an area of about thirty-five thousand feet, and situate in High Street, Borough, close to the London Bridge Terminus, was sold for the unprecedented price of thirty-five thousand pounds. In the United States, the cathedral would probably be pulled down, to make room for blocks of stores.

THE VIENNA ACADEMY. — The exterior of the buildings of the new Academy at Vienna is already completed. The formal opening will probably take place in March.

LE MUSÉE DE CLUNY. — The necessary funds having been secured, it is proposed to enlarge the *Hôtel de Cluny*, at Paris.

APPEARANCES BEFORE COMFORT. — At the late *Congrès National des Architectes*, held at Paris, in the well-known hall of the *École des Beaux-Arts*, called *La Salle de l'Hémicycle*, it was proposed that, inasmuch as speaking was very indistinctly heard from the greater number of seats in the room, while the occupants of the remaining seats were unable to distinguish any thing, the authorities should assign some other hall for the sessions of the *Congrès*. This application was refused: the *Salle de l'Hémicycle* was a grand and architectural hall, and was therefore more befitting the dignity of the meetings than a more humble room, even though better arranged for speaking.

SCAFFOLDING. — *La Semaine des Constructeurs* is to publish, shortly, a description of the mighty scaffolds for the *Hôtel de Ville* at Paris.

BOUCHARDON'S FOUNTAIN. — The well-known fountain, which has so long been the chief object of interest in the Rue de Grenelle-St.-Germain, Paris, is likely to be removed to the Boulevard d'Enfer.

MONASTIC OUBLIETTES? — A curious discovery has been made in the Convent of Santa Maria la Nuova, at Rome, which formerly belonged to the Franciscan monks. It consists in three underground cells, accessible only through a hidden trap-door, and where monks guilty of grave offences were probably put. In the first, there is a little light through an opening in the wall; the second is narrower and darker; the third is without a ray of light, and is a dismal hole. Sinister and nearly obliterated inscriptions cover the walls; and numerous instruments of torture, as well as human bones, were found.

TUNNEL BUILDING. — Mr. John C. Trautwine, C. E., of Philadelphia, has patented a new method of constructing sub-aqueous tunnels. He proposes to abandon the usual method of tunnelling under the bed of the stream, and in its stead to construct the tunnel above water upon a strong, solid, wooden platform, several feet in thickness, which shall serve as a base for it to rest upon after it is finally deposited in its place. The tunnel and its platform are to be sunk into a trench dredged across the bed of the stream for their reception, the depth of which, varying with circumstances, will sometimes leave the greater part of the tunnel above the bed of the stream, and at other times it will be more or less below it. In either case the tunnel may, if necessary, be protected from injury by ice or other floating bodies by being surrounded by loose earth and stones. When the bottom of the stream bed is soft or unstable, piles must be driven to receive the platform.

THE INTER-OCEANIC CANAL. — It is reported that Mr. Meiggs of Peruvian Railroad fame is negotiating with the Nicaraguan Government for the contract to build the Nicaraguan Inter-Oceanic Canal.

AN ARTIFICIAL STONE. — The Cincinnati *Journal of Commerce* says that a new stone, called the Phœnix stone, is being made by submitting properly proportioned mixtures of hydraulic and common limes, hydraulic cements, pulverized iron slag, sand, broken stone, marble, or granite, clays and minerals, as the case may be, confined in proper moulds, to the impact of a steam hammer. One effect of this treatment is to reduce the porosity of the compound to a minimum, as shown by repeated and prolonged tests under water, while the evenness of texture and lasting qualities of the material are said to exceed those of most building-stones.

NEW HYDRAULIC CEMENT. — A French chemist has succeeded in producing a mineral composition which, it is claimed, surpasses hydraulic cement in its use as a mortar, and in its resistance to the action of water; while it is also said to be unaffected by air or acids, and to acquire a stony hardness at two hundred and thirty degrees, which it retains even in boiling water. It is prepared by subjecting a mixture of nineteen pounds of sulphur and forty-two pounds of pulverized stoneware and glass to a gentle heat, sufficient to melt the sulphur, and stirring it until it forms a perfectly homogeneous mass. It is then run into vessels, and allowed to cool. It melts at about two hundred and forty-eight degrees, and can, like asphaltum, be repeatedly used by heating it gently. — *N. Y. Tribune.*

"BERLIN" SANDSTONE. — The following table shows the crushing strength of six specimens of "Berlin" sandstone, in the form of two-inch cubes, sent to Gen. Gillmore, and tested by him: —

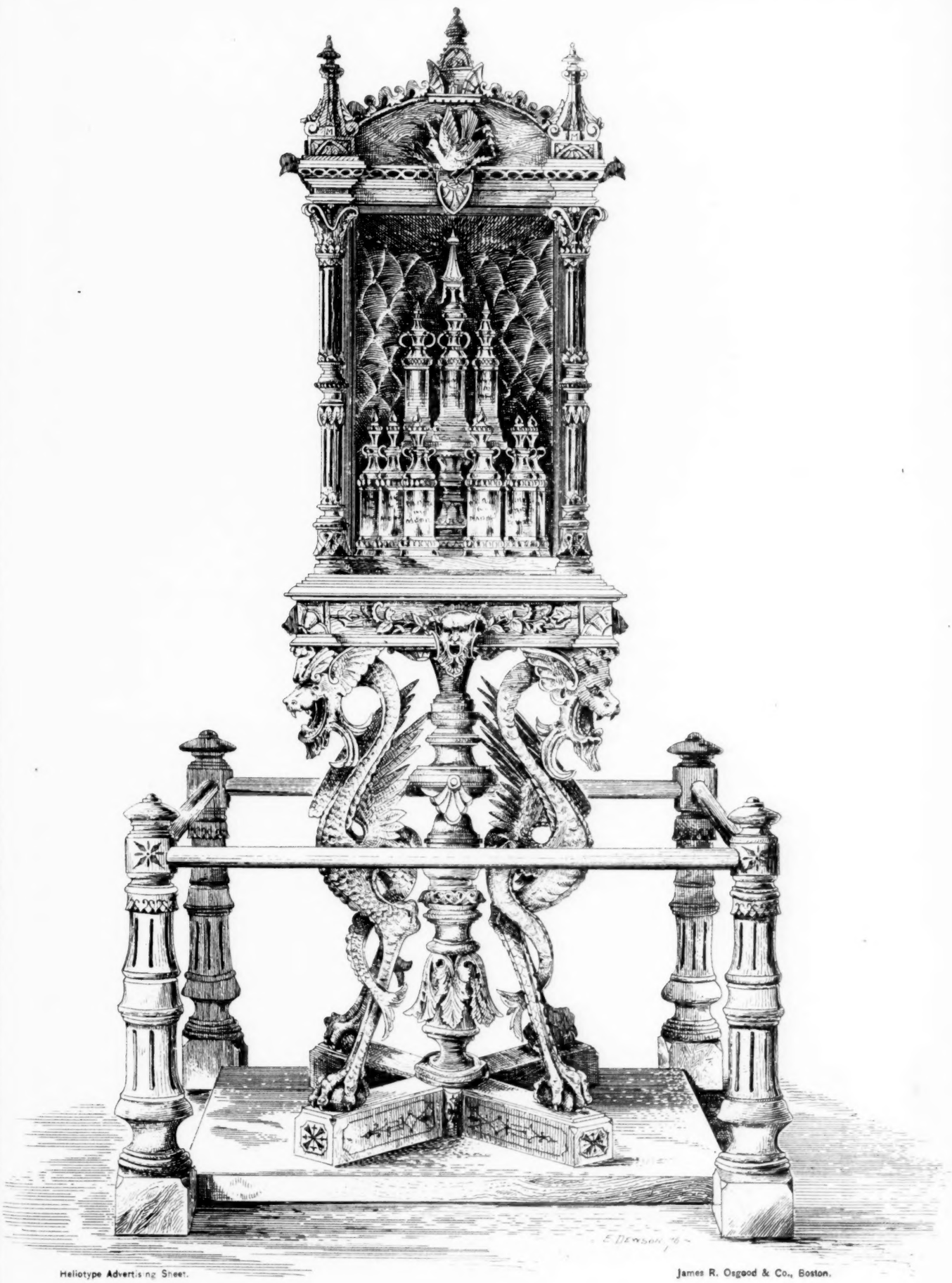
NUMBER.	POSITION.	CRUSHING STRENGTH.	
		Per cube of 2 ins.	Per square in.
1	On bed	65,000 pounds	16,250 pounds
2	" edge	48,000 "	12,000 "
3	" bed	54,000 "	13,500 "
4	" edge	50,000 "	12,500 "
5	" bed	52,000 "	13,000 "
6	" edge	46,000 "	11,500 "

The *average* crushing strength of Berlin stone, as judged from the specimens, would therefore be: —

Broken on bed .....14,250 pounds per square inch.
" " edge.....12,000 " " " " "

RAILROADS. — It appears from statistics prepared by Dr. Stuermer, of Bromberg, Prussia, that Germany constructed 1,493 miles of railroad in 1875, while the United States constructed only 1,545 miles.

UNDERGROUND RAILROAD. — It is proposed to construct an underground railroad in Paris.



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